

US EPA ARCHIVE DOCUMENT



2000943

DATA EVALUATION RECORD

MRIP 00166483

1. Chemical: Amitrole
2. Test Material: ^{91.8}~~96.5~~% (technical ai), a white powder
3. Study Type: 48-hour LC₅₀

Species Tested: Daphnia magna

4. Study ID: Forbis, A.D. (1985) Acute Toxicity of Aminotriazole to Daphnia magna; Report No. 33718; prepared by Analytical Bio-Chemistry Laboratories, Inc., for Union Carbide, P.O. Box 12014, Research Triangle Park, NC 27709.

5. Reviewed by: Curtis E. Laird
Fishery Biologist
EEB/HED

Signature: *Curtis E. Laird*

Date: 9-23-86

6. Approved by: Norman Cook
Supervisory Biologist
EEB/HED

Signature: *Norman Cook*

Date: 9-24-86

7. Conclusions:

This study indicates Amitrole is slightly toxic to Daphnia magna with an LC₅₀ of 18 mg/L. This study does fulfill the requirements in support of registration for an aquatic invertebrate study.

8. Recommendations: N/A.

9. Background:

EEB requested this study in order to fulfill the data gap in the reregistration process.

10. Discussion of Individual Test: N/A.

11. Materials and Methods:

- a. Test Animals: Less than 24-hour-old Daphnia magna from the laboratory culture.
- b. Test System: Glass beakers (250 mL) containing 200 mL of test solution; static exposure to test solution at 20 ± 2 °C; 48 hours duration.
- c. Dose: Static bioassay using nominal concentration; no solvent.
- d. Design: Twenty Daphnia per level; five dose levels plus control (0, 10, 18, 32, 56, and 100 mg/L).
- e. Statistics: Stephan's et al. program was used to calculate the LC₅₀ value.

12. Reported Results:

The study author found that the 48-hour LC₅₀ was 18 ppm for Amitrole 91.83% ai. The no-effect level observed for Aminotriazole was 10 mg/L after 48 hours, which was based on the lack of mortality and abnormal effects.

13. Study Author's Conclusions:

The 48-hour LC₅₀ (95% ci) was 18 (16-21) mg/L. The study was conducted following the intent of Good Laboratory Practice Standards; Pesticide Programs (40 CFR 160). All original raw data were sent to Union Carbide Agricultural Product Company, with a copy retained at Analytical Bio-Chemistry Laboratory.

14. Reviewer's Discussion and Interpretation of the Study

- a. Test Procedures: The test procedure complied with the recommended EPA Protocol of October 1982 (Part 158).
- b. Statistical Analysis: Stephan's et al. 1978 computer program was used to verify to the reported calculated LC₅₀ value.

c. Discussion/Results: The 48-hour LC₅₀ of 18 ppm for technical Amitrole indicates this product is slightly toxic to Daphnia magna.

d. Adequacy of Study:

1. Category: Core.
2. Rationale: N/A.
3. Reparability: N/A.

15. Completion of One-Liner: Yes.

16. CBI Appendix: N/A.

LAIRD AMITROLE 91.83% 48-HOUR LC50 FORE DAPHNIA MAGNA

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
100	20	20	100	9.53674E-05
56	20	20	100	9.53674E-05
32	20	19	95	2.00272E-03
18	20	11	55	41.1901
10	20	0	0	9.53674E-05

THE BINOMIAL TEST SHOWS THAT 10 AND 32 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 17.3148

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD
 SPAN G LC50 95 PERCENT CONFIDENCE LIMITS
 3 .0518336 18.7564 15.7479 21.7457

RESULTS CALCULATED USING THE PROBIT METHOD
 ITERATIONS G H GOODNESS OF FIT PROBABILITY
 7 .177824 1 .766853

SLOPE = 7.82477
 95 PERCENT CONFIDENCE LIMITS = 4.52512 AND 11.1244

LC50 = 18.2027
 95 PERCENT CONFIDENCE LIMITS = 15.6639 AND 21.1037

LC10 = 12.5265
 95 PERCENT CONFIDENCE LIMITS = 9.03287 AND 14.7439
